

**Work Order ID 98844**

Tuesday, March 26, 2013 1:37:57 PM

**\*98844\***

Page 1

Item ID: 646.9701

Accept

**\*N9000040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Cutter Sub Assembly

Start Date: 3/26/2013 Start Qty: 4.00

**\*4\***

Cust Item ID:

Required Date: 3/28/2013 Req'd Qty: 4.00

**\*4\***

Customer:

Reference:

Approvals:

Process Plan: *mf*Date: *13-3-26* Tooling:

Date:

Run Start **\*NR1\***

QC:

Date: SPC (Y/N):

Date:

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

Draw Nbr

Revision Nbr

646.9700

N/C

110

Pick Kit

0.00

**\*110\***

Packaging

Memo

0.00

Packaging

120

0.00

**\*120\***

Small Fab

Memo

0.00

Small Fab

Assemble as per dwg and apply loctite 598 on all mating surfaces per note 2.

A/R LOCTITE 598: *124993*

130

QC5- Inspect part completeness to step on W/O

0.00

**\*130\***

QC

Memo

0.00

Quality Control

*13-03-264**DA5  
16  
9-23**13/03/27**14*

# Work Order ID 98844

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**\*98844\***

Page 2

Item ID: 646.9701

Accept

**\*N9000040100\***

Setup Start **\*NS1\***

Revision ID:

Item Name: Cutter Sub Assembly

Stop **\*NS2\***

Start Date: 3/26/2013 Start Qty: 4.00 **\*4\***

Cust Item ID:

Required Date: 3/28/2013 Req'd Qty: 4.00 **\*4\***

Customer:

Reference:

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start **\*NR1\***

QC:

Date:

SPC (Y/N):

Date:

Stop **\*NR2\***

Sequence ID/  
Work Center ID

Operation  
Description

Set Up/  
Run Hours

Tool ID

Tool #

Plan  
Code

Accept  
Qty

Reject  
Qty

Reject  
Number

Insp.  
Stamp

140

Identify as per dwg & Stock Location: \_\_\_\_\_

0.00

**\*140\***

Packaging

Memo

MED FAB Room 13-03-27

Packaging

150

QC21- Final Inspection - Work Order Release

0.00

**\*150\***

QC

Memo

0.00

Quality Control

13/3/27  
MR  
13-3-27

# Picklist Print

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Page 1

Work Order ID: 98844  
Parent Item: 646.9701  
Parent Item Name: Cutter Sub Assembly

Start Date: 3/26/2013

Required Date: 3/28/2013

Start Qty: 4.00

Required Qty: 4.00

Comments: IPP REV:A 12.08.13 NEW ISSUE DD VERF:JFS

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
646.9710 Body		Manufactured	No	91439		110	Each	60.0000	1	4		13-03-26	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST139		60							
				91439		60							
646.9711 Blade		Manufactured	No			110	Each	118.0000	2	8			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST139E		40							
				90824		40							
				ST437		78							
				90800		26							
				91266		52				8		13-03-26	
MS21042L08 Nut		Purchased	No			110	Each	3,894.0000	6	24			
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST315		3894							
				122141		3							
				122452		9							
				122814		500							
				123900		3382				24		13-03-26	

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>
--	---	---

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

**FAULT CATEGORY**

Landing Gear	General	Other
<input type="checkbox"/> Bending	<input type="checkbox"/> Bend	<input type="checkbox"/> Grain
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Hardware
<input type="checkbox"/> Cracks	<input type="checkbox"/> Broken/Damaged	<input type="checkbox"/> Inspection Incomplete
<input type="checkbox"/> Crushed/Crimped	<input type="checkbox"/> Burrs	<input type="checkbox"/> Instructions Incomplete/Unclear
<input type="checkbox"/> Cuffs	<input type="checkbox"/> Contamination	<input type="checkbox"/> Maintenance
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Countersink	<input type="checkbox"/> Mislabelled
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Misread
<input type="checkbox"/> Ripples in Bend	<input type="checkbox"/> Drill Holes	<input type="checkbox"/> Offset
<input type="checkbox"/> Torque Waves in Extrusion	<input type="checkbox"/> Drawing	<input type="checkbox"/> Out of Calibration
<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Sequence
<input type="checkbox"/> Wave/Twist in Tube	<input type="checkbox"/> Folio	<input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized
		<input type="checkbox"/> Over/Under tolerance
		<input type="checkbox"/> Part Incorrect
		<input type="checkbox"/> Part Lost/Missing
		<input type="checkbox"/> Part Moved
		<input type="checkbox"/> Positioned Wrong
		<input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced
		<input type="checkbox"/> Temperature/Cure
		<input type="checkbox"/> Weld
		<input type="checkbox"/> Wrong Stock Pulled
		<input type="checkbox"/> Other

# Picklist Print

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Page 2

Work Order ID: 98844  
Parent Item: 646.9701  
Parent Item Name: Cutter Sub Assembly

Start Date: 3/26/2013

Required Date: 3/28/2013

Start Qty: 4.00

Required Qty: 4.00

MS27039-08-19 Purchased No

110 Each 2,300.0000 6 24

Screw

## Location

## Loc Qty

## Loc Code

ST307

700

123352

600

123525

100

st510

1200

124309

1000

124859

200

ST517

400

124579

400

24

13-03-26

NAS1149FN832P Purchased No

110 Each 8,879.0000 12 48

Washer

## Location

## Loc Qty

## Loc Code

ST294

8879

115158

79

122441

200

123352

200

123522

400

123900

8000

48

13-03-26

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Shop Packet Print

Page 2

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <div style="display: flex; justify-content: space-between;"> <div>           Skid-tube <input type="checkbox"/>            Machining <input type="checkbox"/>            Thermoforming <input type="checkbox"/>            Large Fab <input type="checkbox"/> </div> <div>           Crosstube <input type="checkbox"/>            Small Fab <input type="checkbox"/>            Finishing <input type="checkbox"/>            Composite <input type="checkbox"/> </div> <div>           Water Jet <input type="checkbox"/>            Prod. Eng. Coord. <input type="checkbox"/>            Rec/Store/Packaging <input type="checkbox"/>            Supplier <input type="checkbox"/> </div> <div>           Engineering <input type="checkbox"/>            Quality <input type="checkbox"/>            Other <input type="checkbox"/> </div> </div>
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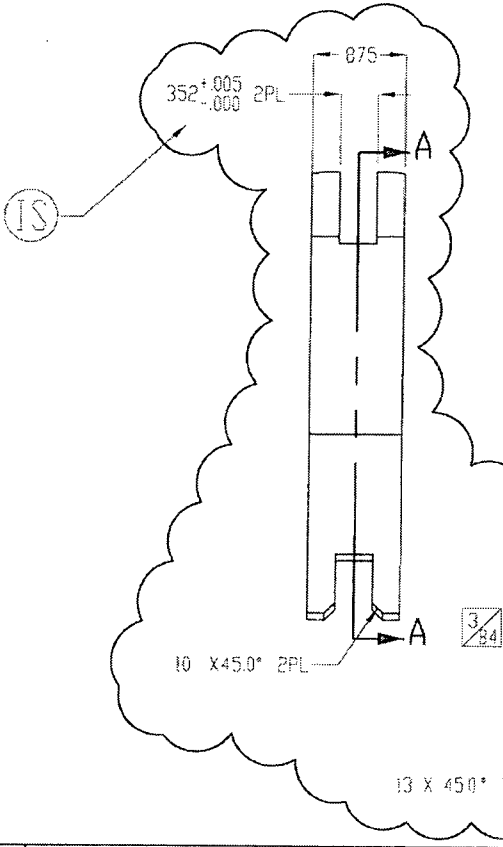
Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

**FAULT CATEGORY**

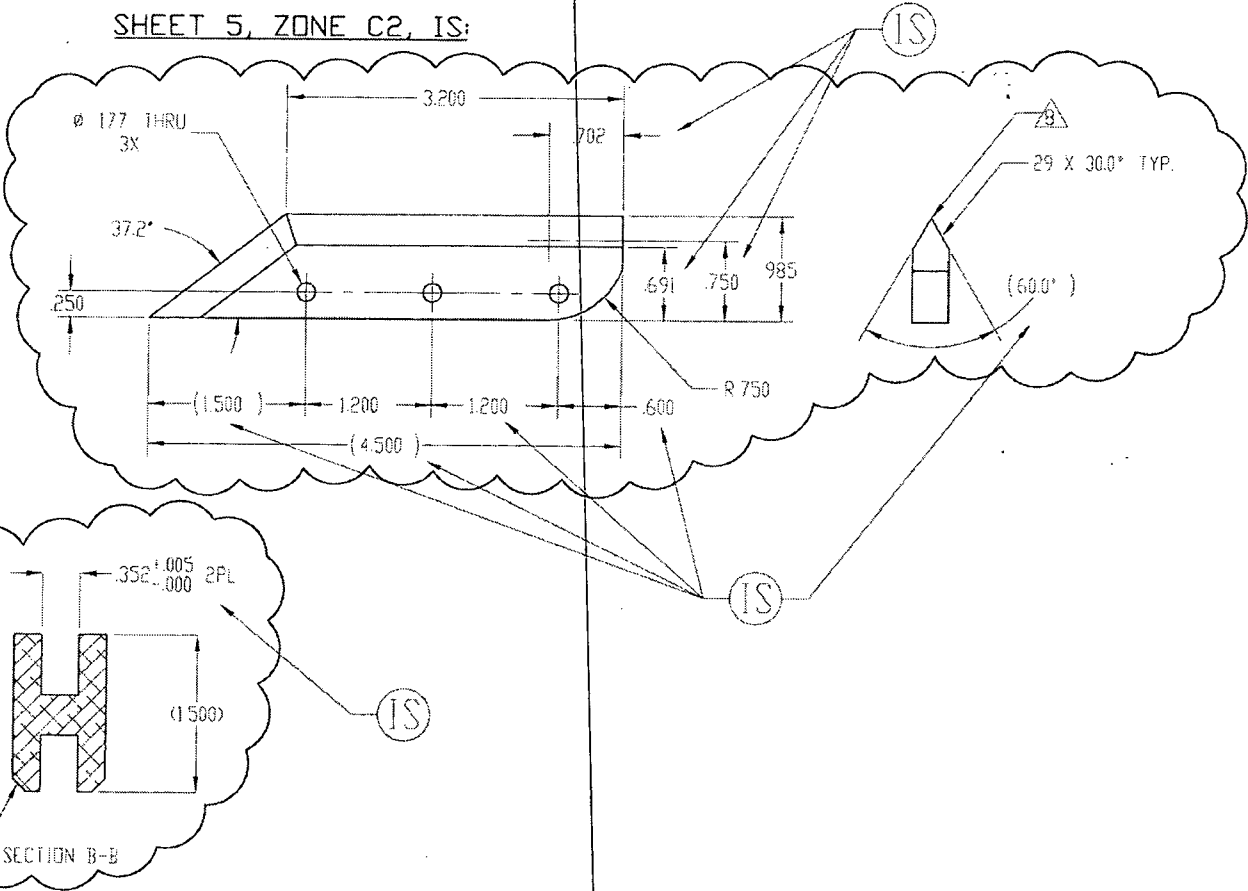
<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other
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APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 02744		SHEET 1 OF 1	
	DWG NO. 646.9700	REV: N/C	PREPARED BY S. HUFF	DATE: 01/07/10
	EFFECT ON DWG <input type="checkbox"/> INC. <input checked="" type="checkbox"/> UNINC.			
DWG TITLE: CUTTER SUB ASSY				
APPROVED BY: ENGR <i>[Signature]</i>		MFG <i>[Signature]</i>	QC <i>[Signature]</i>	EFF: NEXT ORDER
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: REVISED SCREW LENGTH, CHANNEL WIDTHS & DIMENSIONING SCHEME SHEET 5.		

SHEET 2, ZONE C6, IS:



SHEET 5, ZONE C2, IS:



3	R	601.3157		12	SCREW	MS27039-0818			
				.9701					
F/N	TC	PART NUMBER	QTY	DESCRIPTION			MATERIAL / SPECIFICATION		
DOCUMENTS EFFECTED:						CHANGE CATEGORY	DER REVIEW REQUIRED		
<input type="checkbox"/> MDL <input type="checkbox"/> INSTALL INSTRUC <input checked="" type="checkbox"/> ICA <input type="checkbox"/> FMS <input checked="" type="checkbox"/> BOM						<input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR	<input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		

Exploded view diagram of a mechanical assembly. The diagram shows a main rectangular frame (1) and a long, narrow component (2) that fits into it. A long, thin rod (3) is shown passing through the assembly, secured by a cap nut (4) and a washer (6PL). The rod (3) is labeled with a callout '3' and '6PL'. The cap nut (4) is labeled with a callout '4' and '12PL'. The washer (6PL) is labeled with a callout '6' and '6PL'. The main frame (1) is labeled with a callout '1'. The long, narrow component (2) is labeled with a callout '2' and '2PL'.

NOTES:

- ① MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- ② FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III,  
CLASS 2, COLOR BLACK;  
CARDINAL 4860-50 PRETREATMENT PRIMER  
PRIME IAW MIL-P-23377 J TYPE I CLASS N; 1-2 MIL MAX
- ③ MATERIAL: AISI A2 TOOL STEEL  
CONDITION: ANNEALED  
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- ④ FINISH: PRIME IAW MIL-P-23377 J TYPE I CLASS N; 1-2 MIL MAX
5. DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
6. IDENTIFY IAW MPP-120
- ⑦ APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- ⑧ CUTTING EDGE INTENDED TO BE SHARP, DO NOT BREAK SHARP EDGE

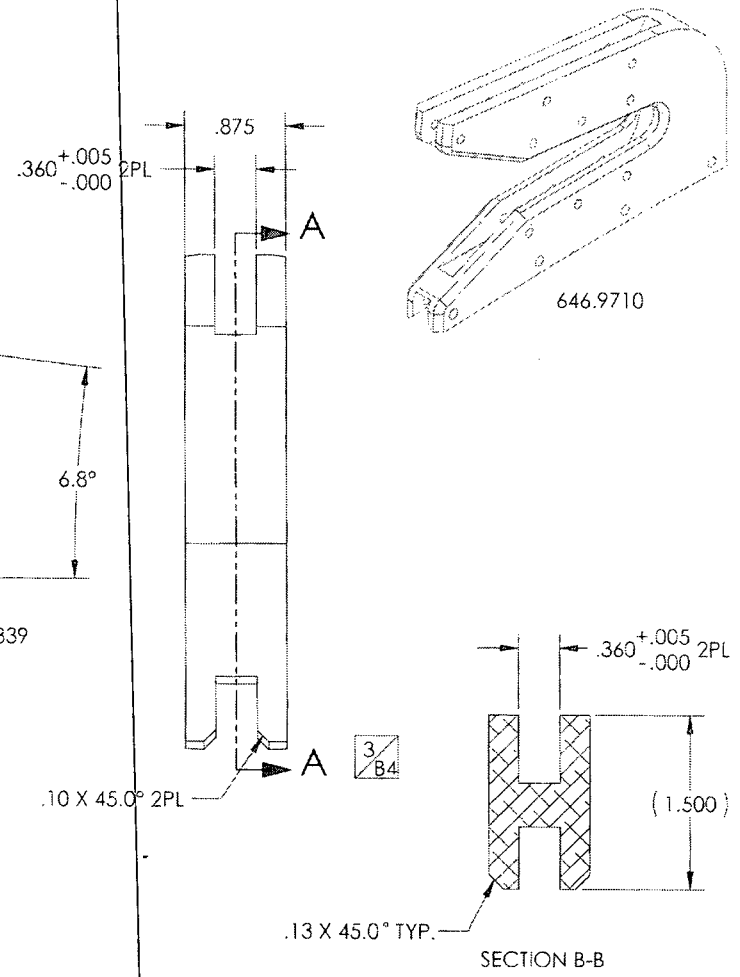
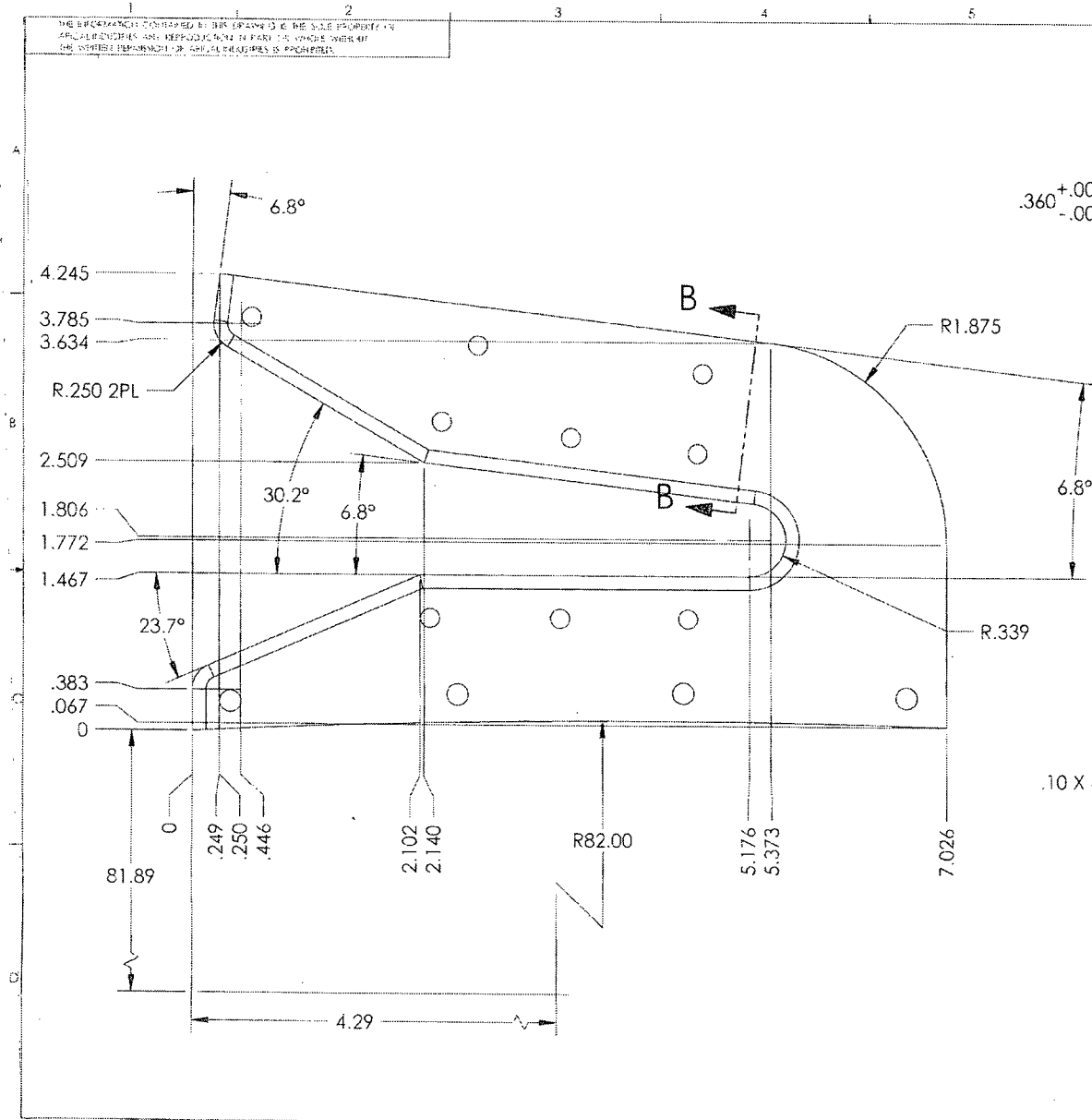
UNINCORPORATED ECN(S)

02744

[illegible]

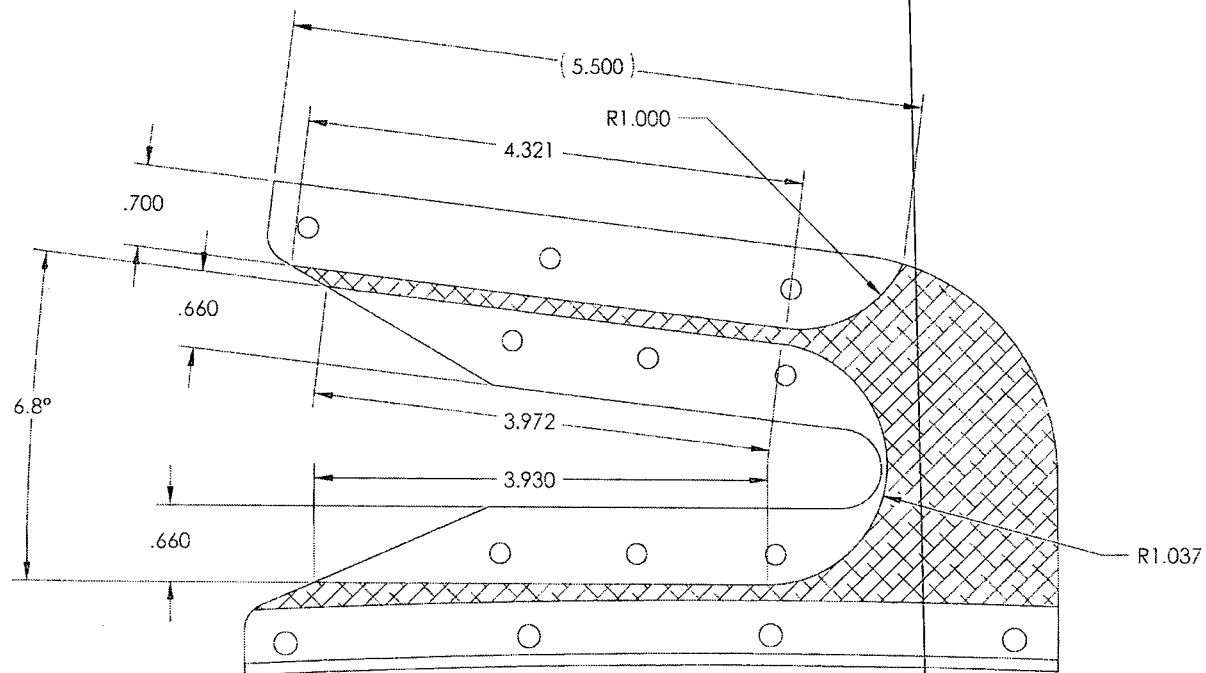


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PROJECT: DATE DESIGNED: 05/20/91 DRAWN: J. J. JENSEN CHECKED: J. J. JENSEN APPROVED: J. J. JENSEN CDR: J. J. JENSEN	<b>APICAL INDUSTRIES</b> 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760) 724-5300
PART NAME: CUTTER PART NO: 646.9700 SCALE: NONE	SHEET: 2 OF 5

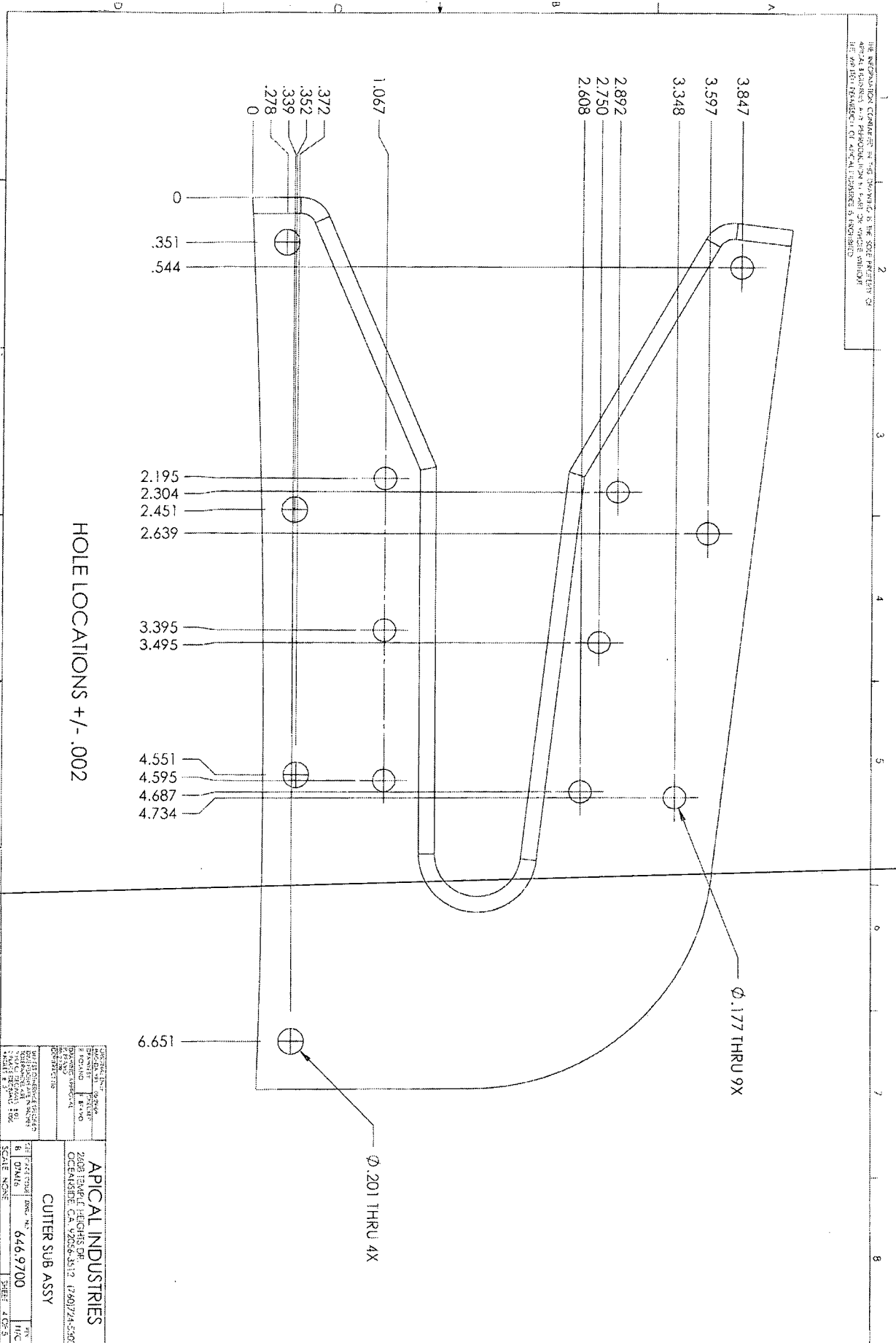
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SECTION A-A  $\frac{2}{C8}$

APICAL INDUSTRIES	
2408 TEMPLE HEIGHTS DR.	
OCEANSIDE, CA. 92056-3512 (760)724-5300	
CUTTER SUB ASSY	
SHEET 3 OF 3	
DATE	07/12/16
SCALE	1:1
REV	N/C

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.340<sup>+0.000</sup>  
-.005

Ø.177 THRU  
3X

37.2°

.250

3.200

.500

.985

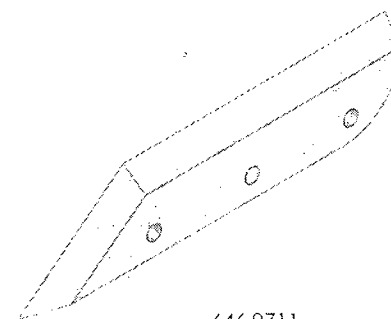
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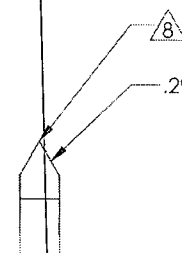
1.200

2.400

4.500



646.9711



8

.29 X 30.0° TYP.

APICAL INDUSTRIES 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760) 704-5300	
CUTTER SUB ASSY	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DIMENSIONS ARE TO BE SHOWN TO TWO DECIMAL PLACES UNLESS OTHERWISE SPECIFIED	DATE: 07/26/2006 DRAWN BY: 646.9700 SCALE: NONE SHEET: 8 OF 8

## Jean-Luc Menard

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**From:** Jason Gardiner  
**Sent:** Tuesday, March 26, 2013 3:11 PM  
**To:** David Barker; Jean-Luc Menard  
**Subject:** RE: 646.9710/647.9710 cutter body/PRIMER BUILD UP

I do not have any objections to this.

Regards,

Jason

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**From:** David Barker [<mailto:dbarker@apicalindustries.com>]  
**Sent:** Tuesday, March 26, 2013 11:43 AM  
**To:** Jean-Luc Menard; Jason Gardiner  
**Subject:** RE: 646.9710/647.9710 cutter body/PRIMER BUILD UP

Removing the primer is fine as long as the hard anodize is not removed and the parts are assembled with RTV per the higher level assembly.

Jason – please let us know if you have any objection to this. JL has submitted an ECR to fix this issue on future production.

Thanks,

Dave

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**From:** Jean-Luc Menard [<mailto:jmenard@dartaero.com>]  
**Sent:** Tuesday, March 26, 2013 11:04 AM  
**To:** David Barker  
**Subject:** 646.9710/647.9710 cutter body/PRIMER BUILD UP

Hi Dave,

As discussed as per our phone conversation, is it acceptable to remove some of the primer on the cutter to allow them to mate properly.

Thx,

JL

**Jean-Luc Menard**  
*Production Engineering Coordinator*

**DART AEROSPACE**  
T 1 613 632-5200 > 227  
F 1 613 632-5246  
1 800 556- 4166  
[www.dartaerospace.com](http://www.dartaerospace.com)

